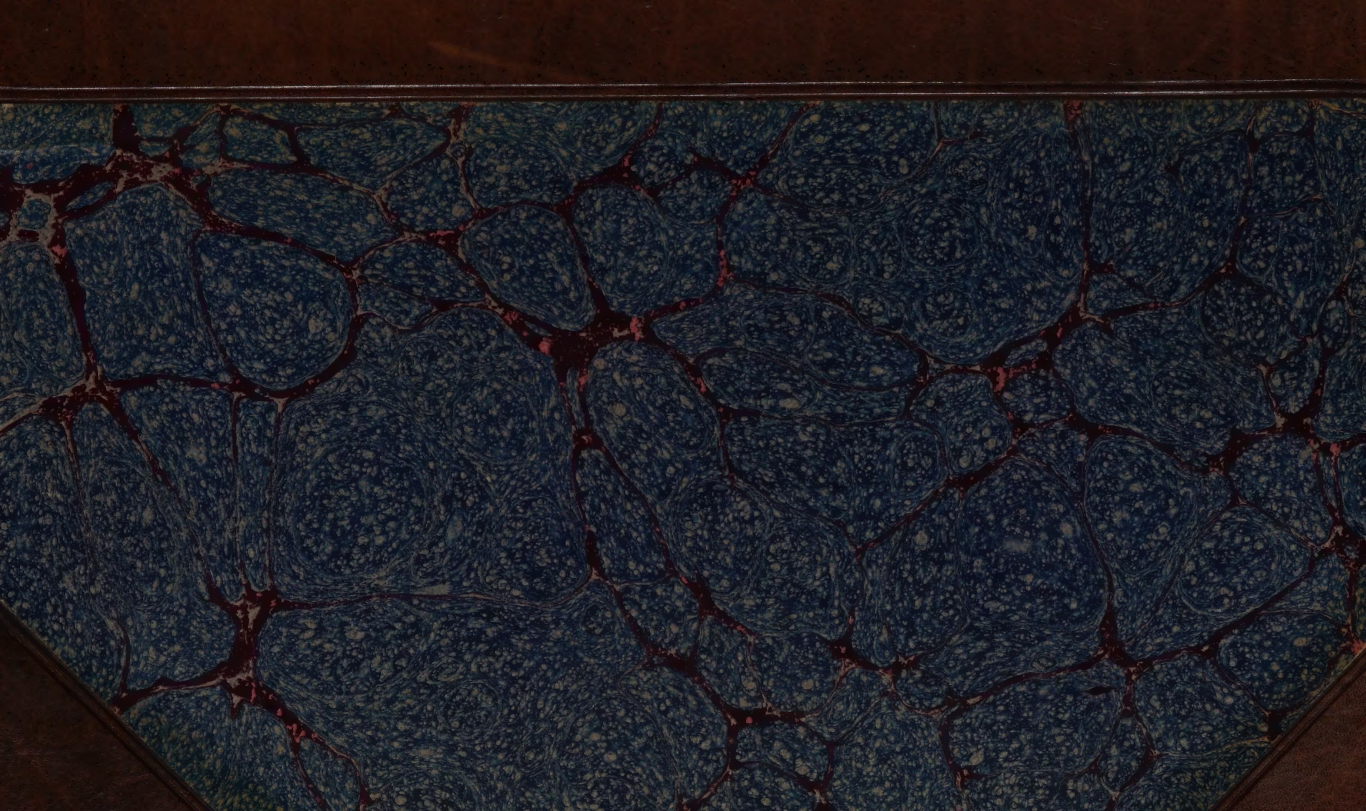


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# ACCOUNT

Of the MANNER of

## Inoculating for the SMALL POX in the EAST INDIES.

[Price One Shilling.]

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Of the MANNER of

## Inoculating for the SMALL POX in the EAST INDIES.

WITH SOME

## OBSERVATIONS

ON

The PRACTICE and MODE of Treating that DISEASE in thoſe Parts.

Inſcribed to the Learned

The PRESIDENT, and MEMBERS of the COLLEGE of PHYSICIANS in LONDON.

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By J. Z. HOLWELL, F.R.S.

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# AN ACCOUNT

## Of the MANNER of Inoculating for the SMALL POX in the EAST INDIES.

ON perusing lately some tracts upon the subject of Inoculation, I determined to put together a few notes relative to the manner of Inoculation, practised, time out of mind, by *the Bramins of Indostan*; to this I was chiefly instigated, by considering the great benefit that may arise to mankind from a knowledge of this foreign method, which so remarkably tends to support the practice now generally followed with such marvellous success.

By Dr. SCHULTZ's account of Inoculation, page 65. note (9), it should seem,

 that

that the world has been already obliged with a performance of the kind which I have now undertaken, by a Dutch author, a friend of Mr. CHAIS; but as this is all I know of that work, it ſhall not diſcourage my proceeding with my own, the more eſpecially as that performance is in a foreign language, and may not much benefit my country.

As many years are elapſed, ſince a theme of this nature has employed my thoughts and attention; I will hope for every favorable indulgence from the candor of that learned and reſpectable Body, to whoſe judgment I moſt readily ſubmit the following hiſtory and obſervations.

It has been lately remarked by a learned and judicious ornament of the College of Phyſicians, "That the Art of Medicine "has, in ſeveral inſtances, been greatly "indebted to Accident; and that ſome of "its moſt valuable improvements have "been received from the hands of Ignorance and Barbariſm; a Truth, remark-

"ably

" ably exemplified in the practice of IN-
" OCULATION of the SMALL POX." —
However juſt *in general* this learned Gentleman's remark may be, he will, as to his *particular reference*, be ſurprized to find, that nearly the ſame ſalutary method, now ſo happily purſued in England, (howſoever it has been ſeemingly blundered upon) has the ſanction of remoteſt antiquity; but indeed with ſome variations, that will rather illuſtrate the propriety of the preſent Practice, and promote the obvious very laudable intention, with which that Gentleman publiſhed his late Eſſay on this intereſting ſubject.

The general ſtate of this diſtemper in the Provinces of Bengall (to which theſe obſervations are limited) is ſuch, that for five and ſometimes ſix years together, it paſſes in a manner unnoticed, from the few that are attacked with it; for the complexion of it in theſe years is generally ſo benign as to cauſe very little alarm; and notwithſtanding the multitudes that are every year inoculated in the uſual ſeaſon, it adds no

malignity to the diſeaſe taken in the natural way, nor ſpreads the infection, as is commonly imagined in Europe. Every ſeventh year, with ſcarcely any exception, the Small Pox rages epidemically in theſe Provinces, during the months of March, April, and May; and ſometimes until the annual returning rains, about the middle of June, put a ſtop to its fury. On theſe periodical returns (to four of which I have been a witneſs) the diſeaſe proves univerſally of the moſt malignant confluent kind, from which few either of the natives or Europeans eſcaped, that took the diſtemper in the natural way, commonly dying on the firſt, ſecond, or third day of the eruption; and yet, Inoculation in the Eaſt, has *natural fears* and *ſuperſtitious prejudices* to encounter, as well as in the Weſt. The uſual reſource of the Europeans is to fly from the ſettlements, and retire into the country before the return of the Small Pox ſeaſon.

It is ſingularly worth remarking, that there hardly ever was an inſtance of a native

tive of the Iſland of St. Helena, man or woman, that was ſeized with this diſtemper in the natural way (when reſident in Bengall,) who eſcaped with life; altho' it is a known fact the diſeaſe never yet got footing upon that Iſland. Clearly to account for this, is not an eaſy matter; I will venture, however, a few conjectures on the occaſion. Theſe people rarely migrate from the Iſland before they arrive at years of maturity; the baſis of their diet there, from their infancy, is a root called *yam*, of a *ſkranſhee kind*, a term they uſe to expreſs its acrid, unwholeſome qualities, which frequently ſubjects them to epidemic and dangerous dyſenteries, and ſometimes epidemic putrid ſore throats. The blood thus charged, muſt neceſſarily conſtitute a moſt unlucky habit of body to combat with any acute inflammatory diſeaſe whatſoever, but more eſpecially of the kind under conſideration (ſo frequently attended with a high degree of putrefaction,) always fatal to theſe people, even in thoſe ſeaſons when the diſeaſe is mild and favorable to others: But indeed it is a general remark, that a

St.

St. Helenian rarely eſcapes when ſeized with the Small Pox in whatſoever part of the Globe he happens to reſide. The ſame has been obſerved of the African Coffries, altho' I know not what cauſe to aſcribe it to, unleſs we ſuppoſe one ſimilar to that above mentioned, to wit, ſome fundamental aggravating principle in their chief diet. Be this as it may, that theſe two portions of the human ſpecies ſeem peculiarly marked as victims to this diſeaſe, is a fact indiſputable, let the cauſe be what it will.

Having thus far premiſed touching the general ſtate of this diſtemper in the Provinces of Bengall, (which I believe is nearly applicable to every other part of the Empire) I will only add a few words reſpecting the duration of it in Indoſtan, and then haſten to the principal intention of this ſhort Eſſay.

The learned Doctor FREIND in his Hiſtory of Phyſic from the time of GALEN, has this remarkable paſſage: "By the "earlieſt account we have of the Small "Pox, we find it firſt appeared in *Ægypt* "in

" in the time of *Omar*, ſucceſſor to *Maho-*
" *met:* though no doubt, ſince the *Greeks*
" knew nothing of it, the *Arabians* brought
" it from their own country, and might
" derive it originally from ſome of the
" more diſtant regions of the *Eaſt*." The ſagacity of this concluſion, later times and diſcoveries has fully verified; at the period in which the *Aughtorrah Bhade* ſcriptures of the Gentoos were promulged, (according to the Bramins three thouſand three hundred and ſixty ſix years ago;) this diſeaſe muſt then have been of ſome ſtanding, as thoſe ſcriptures inſtitute a form of divine worſhip, with *Poojahs*, or offerings, to a female Divinity, ſtiled by the common people *Gootee ka Tagooran* (the Goddeſs of Spots,) whoſe aid and patronage are invoked during the continuance of the Small Pox ſeaſon, alſo in the Meaſles, and every cutaneous Eruption that is in the ſmalleſt degree epidemical. Due weight being given to this circumſtance, the long duration of the Diſeaſe in Indoſtan will manifeſtly appear; and we may add to the ſagacious conjecture juſt quoted, that not only

only the *Arabians*, but the *Ægyptians* alſo, by their early commerce with India through the Red Sea and Gulf of Mocha, moſt certainly derived originally the Small Pox (and probably the Meaſles likewiſe) from that country, where thoſe diſeaſes have reigned from the earlieſt known times.

Inoculation is performed in Indoſtan by a particular tribe of Bramins, who are delegated annually for this ſervice from the different Colleges of Bindoobund, Eleabas, Banaras, &c. over all the diſtant Provinces; dividing themſelves into ſmall parties, of three or four each, they plan their travelling circuits in ſuch wiſe as to arrive at the places of their reſpective deſtination ſome weeks before the uſual return of the diſeaſe; they arrive commonly in the Bengall Provinces early in February, although they ſome years do not begin to inoculate before March, deferring it untill they conſider the ſtate of the ſeaſon, and acquire information of the ſtate of the diſtemper.

The year in Bengall can properly be divided into three ſeaſons only, of four months

months each; from the middle of June to the middle of October is the rainy ſeaſon; from the middle of October to the middle of February is the cold ſeaſon, which never riſes to a degree of freezing; the whole globe does not yield a more deſirable or delightful climate than Bengall during theſe four months; but the freedom of living, which the Europeans fall into at this ſeaſon, ſow the ſeeds of thoſe diſeaſes which ſpring up in all the ſucceeding months of the year. From the middle of February to the middle of June is the hot, windy, dry ſeaſon; during which no rain falls but what comes in ſtorms of fierce winds and tremendous thunder and lightning, called North Weſters, the quarter they always riſe from; and the Provinces, particularly Bengall, is more or leſs healthy, in proportion to the number of theſe ſtorms; when in this ſeaſon the air is frequently agitated and refreſhed with theſe North Weſters, accompanied with rain, (for they are often dry,) and the inhabitants do not expoſe themſelves to the intenſe ſun and violent hot winds that blow in March,

April, and May, it is generally found to be the moſt healthy of the year; otherwiſe (as in the year 1744, when we had no rain from the twentieth of October to the twentieth of June) this ſeaſon produces high inflammatory diſorders of the liver, breaſt, pleura, and inteſtines, with dyſenteries, and a deplorable ſpecies of the Small-Pox.

From the middle of July (the ſecond month of the rainy ſeaſon) there is little or no wind, a ſtagnation of air follows, and during the remainder of this month, and the months of Auguſt and September, the atmoſphere is loaded with ſuffocating heat and moiſture, the parents of putrefaction; and nervous putrid fevers (approaching ſometimes to peſtilential) take the lead, and mark the dangerous ſeaſon; from theſe fevers the Natives frequently recover, but the Europeans ſeldom, eſpecially if they in the preceding May and June indulged too freely in thoſe two *bewitching delicacies*, *Mangos* and *Mango Fiſh*, indiſcriminately with the free uſe of *fleſh* and *wine*; for theſe *(all together)* load the whole habit with impurities, and never

never fail of yielding Death a plentiful harveſt, in the three laſt months of this putrid ſeaſon: If any are ſeized with the Small-Pox in theſe months, it is ever of the moſt malignant kind, and uſually fatal. It will not, I hope, be deemed a uſeleſs digreſſion, if I beſtow a few remarks on the nature of this *Bengall Fever*.

A day or two before the ſeizure, the patient finds his appetite fall off, feels an unaccountable laſſitude, and failure in the natural moiſture of the mouth, is low ſpirited without any apparent cauſe, and cannot ſleep as uſual; but having no acute complaint whatſoever, nor preternatural heat, that ſhould indicate a fever, he attributes the whole to the heat of the ſeaſon, is ſatisfied with faſting and confinement to his houſe, or goes abroad amongſt his friends to "ſhake it off," as the common phraſe is; but on the third day, finding every one of theſe ſymptoms increaſe, he begins to think ſomething is really the matter with him, and the Phyſician is called in: thus the only period is loſt

wherein art might be of any uſe; for in the courſe of eighteen years practice I never knew an inſtance of recovery from this genuine fever, where the firſt three days had elapſed without aſſiſtance, and the patient in this caſe dyed on the fifth or ſeventh day. In ſome, this fever is attended with a full, equal, undiſturbed pulſe, but obviouſly greatly *oppreſſed*; in others, with a low and *depreſſed* one, but equal and undiſturbed alſo, and yet both required the ſame treatment. New comers in the profeſſion, have been often fatally miſled by the full pulſe, which they thought indicated the loſs of blood; they followed the ſuggeſtion, the pulſe ſuddenly fell, and when that happens from this cauſe, the art of man can never raiſe it again, the patient dies on the fifth or ſeventh day; and the conſequence was exactly the ſame, if Nature, being overloaded, attempted to free herſelf of part of the burden by a natural hæmorrhage, or by the inteſtines, on the ſecond or third day, (which I have often ſeen) they proved equally fatal as the launcet. Until the

cloſe

close of the sixth day the skin and urine preserved a natural state; but if at this period of the fever the skin suddenly acquired an intense heat, and the urine grew crude and limpid, it was a sure presage of death on the seventh. The natural crisis of this fever, when attacked in the very beginning, and treated judiciously, was regularly on the eleventh day, and appeared in a multitude of small boils, chiefly upon the head, or in small watery bladders thrown out upon the surface of the skin, but in the greatest abundance on the breast, neck, throat, and forehead; both of these critical appearances are constantly preceded, on the tenth day, by a copious sediment and separation in the urine. If by any inadvertent exposure to the cold air, these critical eruptions were struck in, the repelled matter instantly fell upon the brain, and convulsions and death followed in a few hours, and small purple spots remained in the places of the eruptions. Such is the *genuine putrid nervous fever of Bengall*, which never gave way properly to any treatment but that of blisters applied univer-

univerſally, ſupported by the ſtrongeſt alexipharmics: ſometimes I have ſeen the criſis (by unſkilful management) ſpun out to the twenty-firſt day, but it has been ever imperfect, and the patient is harraſſed with intermittents or diarrhœas, and commonly dies in the beginning of the cold ſeaſon; but if he is of a ſtrong conſtitution, he lingers on, in a dying way, until the month of February, which uſually gives ſome turn in his favor, but his health is hardly ever re-eſtabliſhed before the ſalutary *mango ſeaſon*, which fruit, eaten with *milk*, proves an effectual and never-failing reſtorative. But to reſume our ſubject.

The inhabitants of Bengall, knowing the uſual time when the Inoculating Bramins annually return, obſerve ſtrictly the regimen enjoined, whether they determine to be inoculated or not; this preparation conſiſts only in abſtaining for a month from fiſh, milk, and ghee, (a kind of butter made generally of buffalo's milk;) the prohibition of fiſh reſpects only the native

Portu-

Portugueſe and Mahomedans, who abound in every Province of the Empire.

When the Bramins begin to Inoculate, they paſs from houſe to houſe and operate at the door, refuſing to inoculate any who have not, on a ſtrict ſcrutiny, duly obſerved the preparatory courſe enjoined them. It is no uncommon thing for them to aſk the Parents how many Pocks they chuſe their Children ſhould have: Vanity, we ſhould think, urged a queſtion on a matter ſeemingly ſo uncertain in the iſſue; but true it is, that they hardly ever exceed, or are deficient, in the number required.

They inoculate indifferently on any part, but if left to their choice, they prefer the outſide of the arm, mid-way between the wriſt and the elbow, for the males; and the ſame between the elbow and the ſhoulder for the females. Previous to the operation the Operator takes a piece of cloth in his hand, (which becomes his perquiſite if the family is opulent,) and with it gives a dry friction upon the part intended for Inoculation, for the ſpace of eight

eight or ten minutes, then with a ſmall inſtrument he wounds, by many ſlight touches, about the compaſs of a ſilver groat*, juſt making the ſmalleſt appearance of blood, then opening a linen double rag (which he always keeps in a cloth round his waiſt) takes from thence a ſmall pledgit of cotton charged with the variolous matter, which he moiſtens with two or three drops of the *Ganges* water, and applies it to the wound, fixing it on

* The inſtrument they make uſe of, is of iron, about four inches and a half long, and of the ſize of a large crow quill, the middle is twiſted, and the one end is ſteeled and flatted about an inch from the extremity, and the eighth of an inch broad; this extremity is brought to a very keen edge, and two ſharp corners; the other end of the inſtrument is an ear-picker, and the inſtrument is preciſely the ſame as the Barbers of Indoſtan uſe to cut the nails, and depurate the ears of their cuſtomers, (for in that country, we are above performing either of theſe operations ourſelves.) The Operator of Inoculation holds the inſtrument as we hold a pen, and with dextrous expedition gives about fifteen or ſixteen minute ſcarifications (within the compaſs abovementioned) with one of the ſharp corners of the inſtrument, and to theſe various little wounds, I believe may be aſcribed the diſcharge which almoſt conſtantly flows from the part in the progreſs of the diſeaſe. I cannot help thinking that too much has been ſaid (pro and con) about nothing, reſpecting the different methods preferred by different Practitioners of performing the operation; provided the matter is thrown into the blood, it is certainly a conſideration of moſt trivial import by what means it is effected; if any claims a preference, I ſhould conclude it ſhould be that method which bids faireſt for ſecuring a plentiful diſcharge from the ulcer.

with

with a ſlight bandage, and ordering it to remain on for ſix hours without being moved, then the bandage to be taken off, and the pledget to remain until it falls off itſelf; ſometimes (but rarely) he ſqueezes a drop from the pledget, upon the part, before he applies it; from the time he begins the dry friction, to the tying the knot of the bandage, he never ceaſes reciting ſome portions of the worſhip appointed, by the *Aughtorrah Bhade*, to be paid to the female Divinity beforementioned, nor quits the moſt ſolemn countenance all the while. The cotton, which he preſerves in a double callico rag, is ſaturated with matter from the inoculated puſtules of the preceding year, for they never inoculate with freſh matter, nor with matter from the diſeaſe caught in the natural way, however diſtinct and mild the ſpecies. He then proceeds to give inſtructions for the treatment of the patient through the courſe of the proceſs, which are moſt religiouſly obſerved; theſe are as follow:

He extends the prohibition of fiſh, milk, and ghee, for one month from the day of Inoculation; early on the morning ſucceeding the operation, four collons (an earthen pot containing about two gallons) of cold water are ordered to be thrown over the patient, from the head downwards, and to be repeated every morning and evening until the fever comes on, (which uſually is about the cloſe of the ſixth day from the Inoculation,) then to deſiſt until the appearance of the eruptions, (which commonly happens at the cloſe of the third complete day from the commencement of the fever,) and then to purſue the cold bathing as before, through the courſe of the diſeaſe, and until the ſcabs of the puſtules drop off. They are ordered to open all the puſtules with a fine ſharp pointed thorn, as ſoon as they begin to change their colour, and whilſt the matter continues in a fluid ſtate. Confinement to the houſe is abſolutely forbid, and the inoculated are ordered to be expoſed to every air that blows; and the utmoſt

utmoſt indulgence they are allowed when the fever comes on, is to be laid on a mat at the door; but, in fact, the eruptive fever is generally ſo inconſiderable and trifling, as very ſeldom to require this indulgence. Their regimen is ordered to conſiſt of all the refrigerating things the climate and ſeaſon produces, as plantains, ſugar-canes, water-melons, rice, gruel made of white poppy-ſeeds, and cold water, or thin rice gruel for their ordinary drink. Theſe inſtructions being given, and an injunction laid on the patients to make a thankſgiving *Poojah*, or Offering, to the Goddeſs on their recovery, the Operator takes his fee, which from the poor is a *pund of cowries*, equal to about a penny ſterling, and goes on to another door, down one ſide of the ſtreet and up on the other, and is thus employed from morning until night, inoculating ſometimes eight or ten in a houſe. The regimen they order, when they are called to attend the diſeaſe taken in the natural way, is uniformly the ſame. There uſually begins to be a diſcharge from the ſcarification a day be-

fore the eruption, which continues through the diſeaſe, and ſometimes after the ſcabs of the Pock fall off, and a few puſtules generally appear round the edge of the wound; when theſe two circumſtances appear only, without a ſingle eruption on any other part of the body, the patient is deemed as ſecure from future infection, as if the eruption had been general.

When the before recited treatment of the Inoculated is ſtrictly followed, it is next to a miracle to hear, that one in a million fails of receiving the infection, or of one that miſcarries under it; of the multitudes I have ſeen inoculated in that country, the number of puſtules have been ſeldom leſs than fifty, and hardly ever exceeded two hundred. Since, therefore, this practice of the Eaſt has been followed without variation, and with uniform ſucceſs from the remoteſt known times, it is but juſtice to conclude, it muſt have been originally founded on the baſis of rational principles and experiment.

Although

Although I was very early prejudiced in preference of the cool regimen and free admiſſion of air, in the treatment of this diſeaſe, yet, on my arrival in Bengall, I thought the practice of the Bramins carried *both* to a bold, raſh, and dangerous extreme; but a few years experience gave me full conviction of the propriety of their method: this influenced my practice, and the ſucceſs was adequate; and I will venture to ſay, that every gentleman in the Profeſſion who did not adopt the ſame mode, (making a neceſſary diſtinction and allowance between the conſtitutions of the Natives and Europeans,) have loſt many a patient, which might otherwiſe have been ſaved; as I could prove in many inſtances, where I have been called in too late to be of any aſſiſtance. But to form a judgment of the propriety of this Eaſtern practice with more preciſion, it will be beſt to analyze it, from the period of the enjoined preparation, to the end of the proceſs; as thereby an opportunity preſents itſelf of diſplaying the principles on which the Bramins act, and by which they

they juſtify their ſingular method of practice.

It has been already ſaid, that the preparative courſe conſiſts only in abſtaining from fiſh, milk, and ghee; reſpecting the firſt, it is known to be a viſcid and inflammatory diet, tending to foul and obſtruct the cutaneous glands and excretory ducts, and to create in the ſtomach and firſt paſſages a tough, ſlimy phlegm, highly injurious to the human conſtitution; as theſe are the generally ſuppoſed qualities of this diet, it ſeems forbid upon the juſteſt grounds.

Touching milk, which is the baſis (next to rice) of all the natives food, I confeſs I was ſurprized to find it one of the forbidden articles, until I was made acquainted with their reaſoning on the ſubject. They ſay that milk becomes highly nutritious, not only from its natural qualities, but principally from its ready admiſſion into the blood, and quick aſſimulation with it; and that it conſequently is a warm heating diet, and muſt have a remote

mote tendency to inflammation, whenever the blood is thrown into any preternatural ferment, and therefore, that milk is a food highly improper, at a ſeaſon when the preternatural fermentation that produces the Small Pox ought to be feared, and guarded againſt by every perſon who knows himſelf liable to the diſeaſe, or determined to prepare himſelf for receiving it, either from nature or art. Upon this principle and reaſoning it is, that their women, during the courſe of their periodical viſitations, are ſtrictly forbid, and religiouſly abſtain from, the uſe of milk, leſt it ſhould, upon any accidental cold, diſpoſe the uterus to inflammation and ulceration; and from the ſame apprehenſion, the uſe of it is as ſtrictly prohibited during the flow of the lochia, and is avoided as ſo much poiſon; our European women, reſident in India, have adopted the ſame precaution from experience of the effect, and will not, on any conſideration, at thoſe times, mix the ſmalleſt quantity with their tea, a leſſon they derive from their Midwives, who are all natives, and generally are inſtruct-

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ed in their calling by the Bramins, and other Practitioners in Physic.

Concerning the third interdicted article, they allege, that under *that* is implied a prohibition of all fat and oily substances, as their qualities are nearly similar with those of fish, and similar in their effects of fouling the first passages in a high degree above any other aliment that is taken into them; that they soon acquire an acrimony in the course of digestion, and convey the same into the blood and juices; these premises being granted, which I think can hardly be denied, there appears sufficient cause for prohibiting the use of the whole tribe; the more especially, as ghee and oil are the essential ingredients used in cooking their vegetable diet.

Thus far the system of practice pursued by the Bramins will, I imagine, appear rational enough, and well founded; but they have other reasons for particularly prohibiting the use of these three articles, which to some may appear purely speculative, if not chimerical. They lay it

down as a *principle*, that the *immediate* (or inſtant) cauſe of the Small Pox exiſts in the mortal part of every human and *animal* form *; that the *mediate* (or ſecond) *acting* cauſe, which ſtirs up the *firſt*, and throws it into a ſtate of fermentation, is multitudes of *imperceptible animalculæ* floating in the atmoſphere; that theſe are the cauſe of all epidemical diſeaſes, but more particularly of the Small Pox; that they return at particular ſeaſons in greater or leſſer numbers; that theſe bodies, imperceptible as they are to the human organs of viſion, impriſon the moſt malignant tribes of the *fallen angelic Spirits:* That theſe animalculæ touch and adhere to every thing, in greater or leſſer proportions, according to the nature of the ſurfaces which they encounter; that they

* In an epidemic ſeaſon of the confluent Small Pox, Turkeys, Chittygong Fowls, Madraſs Capons, and other poultry, are carried off by the diſeaſe in great numbers; and have the ſymptoms uſually accompanying every ſtage of the diſtemper. I had a favourite Parrot that died of it in the year 1744; in him I had a fair opportunity of obſerving the regular progreſs of the diſorder; he ſickened, and had an ardent fever full two days before the eruption, and died on the ſeventh day of the eruption; on opening him, we found his throat, ſtomach, and whole channel of the firſt paſſages, lined as thick with the puſtules as the ſurface of his body, where, for the moſt part, they roſe contiguous, but in other places they ran together.

paſs and repaſs in and out of the bodies of all animals in the act of reſpiration, without injury to themſelves, or the bodies they paſs through; that ſuch is not the caſe with thoſe that are taken in with the food, which, by maſtication, and the digeſtive faculties of the ſtomach and inteſtines, are cruſhed and aſſimulated with the chyle, and conveyed into the blood, where, in a certain time, their malignant juices excite a fermentation peculiar to the *immediate* (or *inſtant*) cauſe, which ends in an eruption on the ſkin. That they adhere more cloſely, and in greater numbers, to glutinous, fat, and oily ſubſtances, by which they are in a manner taken priſoners; that *fiſh*, *milk*, and *ghee*, have theſe qualities in a more eminent and dangerous degree, and attach the animalculæ, and convey them in greater quantities into the blood; and for theſe reaſons, added to thoſe before aſſigned, they are forbid to be taken in food during the preparative courſe. They add, that the Small Pox is more or leſs epidemical, more mild or malignant, in proportion as the air is charged with theſe

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animalculæ, and the quantity of them received with the food. That though we all receive, with our aliment, a portion of them, yet it is not always ſufficient in quantity to raiſe this peculiar ferment, and yet may be equal to ſetting the ſeeds of other diſeaſes in motion; hence the reaſon why any epidemical diſorder ſeldom appears alone. That when once this *peculiar* ferment, which produces the Small Pox, is raiſed in the blood, the *immediate (inſtant) cauſe* of the diſeaſe is totally expelled in the eruptions, or by other channels; and hence it is, that the blood is not ſuſceptible of a ſecond fermentation of the ſame kind. That Inoculating for this diſeaſe was originally hinted by the *Divinity* preſiding over the *immediate (inſtant) cauſe*, the thought being much above the reach of human wiſdom and foreſight. That the great and obvious benefit accruing from it, conſiſts in this, that the fermentation being excited by the action of a ſmall portion of matter (ſimilar to the *immediate* cauſe) which *had already paſſed through* a ſtate of fermentation, the effects muſt be moderate

derate and benign; whereas the fermentation raiſed by the malignant juices of the animalculæ received into the blood with the aliment, gives neceſſarily additional force and ſtrength to the firſt efficient cauſe of the diſeaſe.

That noxious animalculæ, floating in the atmoſphere, are the cauſe of all peſtilential, and other epidemical diſorders, is a doctrine the Bramins are not ſingular in; however, ſome of the concluſions drawn from it, are purely their own. A ſpeculative genius may amuſe itſelf by aſſigning this or that efficient cauſe, or firſt principle of this diſeaſe; but the beſt conjecture which the wiſdom of man can frame, will appear vague and uncertain; nor is it of much moment, in the preſent caſe, to puzzle the imagination, by a minute enquiry into the eſſence of a cauſe hidden from us, when the effects are ſo viſible, and chiefly call for our regard: but if we muſt aſſign *a cauſe*, why every part of the globe, *at particular ſeaſons*, is more liable to peculiar malignant epidemical diſeaſes, than

*at others,* (which experience manifeſts) I ſee no one that ſo much wears the complexion of probability, as that of peſtilent animalculæ, driven by ſtated winds, or generated on the ſpot by water and air in a ſtate of ſtagnation, (and conſequently in a ſtate of putrefaction favourable to their propagation,) and received into the habit with our food and reſpiration. We yearly ſee, in a greater or leſſer degree, the baneful effects of theſe inſects in blights, although at their firſt ſeizure of a plant they are inviſible, even with the aſſiſtance of the beſt glaſſes; and I hope I ſhall not be thought to refine too much on the argument, if I give it as my opinion, that epidemical blights, and epidemical diſeaſes of one kind or other, may be obſerved to go often hand in hand with each other, from the ſame identical cauſe. But to proceed in our analyſis.

The mode by which the Eaſtern Inoculators convey the variolous taint into the blood, has nothing uncommon in it, unleſs we except the preceding friction upon the part intended for Inoculation, and moiſtening the ſaturated pledget, before the

the application of it; for this practice they alledge the following reaſons; that by *friction* the circulation in the ſmall ſanguinary veſſels is accelerated, and the matter being *diluted* by a ſmall portion of *Ganges water*, is, from both cauſes, more readily and eagerly received, and the operation at the ſame time ſanctified. The friction and dilution of the matter, has certainly the ſanction of very good common ſenſe; and the Ganges water, I doubt not, may have as much efficacy as any other *holy water* whatſoever. This laſt circumſtance, however, keeps up the piety and ſolemnity with which the operation is conducted from the beginning to the end of it; it tends alſo to give confidence to the patient, and ſo far is very laudable. The reaſons they aſſign for giving the preference to matter of the *preceding year*, are ſingular and judicious; they urge, it is more certain in its effects; that neceſſity firſt pointed out the fact, (the variolous matter ſome years not being procurable,) and experience confirmed it: they add, that when the matter is effectually ſecured from the air, it undergoes at the

return

return of the ſeaſon an *imperceptible fermentation*, which gives freſh vigour to its action. It is no uncommon thing to inoculate with matter four or five years old, but they generally prefer that of a year old, conceiving that the fermentation which conſtitutes its ſuperiority over freſh matter, is yearly leſſened, and conſequently the eſſential ſpirit of action weakened, after the firſt year.

The next article of the Eaſtern practice, which offers in the courſe of our diſcuſſion, is their ſluicing their patients over head and ears, morning and evening, with cold water, until the fever comes on; in which the inoculating Bramins are, beyond controverſy, ſingular: but before we can penetrate the grounds and reaſons for this practice, it becomes neceſſary to beſtow a few words on the uſual manner of cold bathing in the Eaſt, when medically applied, which is ſimply this; the water is taken up over night, in three, four, or five veſſels, before deſcribed, (according to the ſtrength of the patient,) and left in the open air, to receive the dews of the night, which gives it an intenſe coldneſs;

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then in the morning, before the ſun riſes, the water is poured without intermiſſion, by two ſervants, over the body, from the diſtance of ſix or twelve inches above the head. This mode of cold bathing has been adopted from the Eaſtern profeſſors of Phyſic, by all the European practitioners, and by conſtant experience found abundantly more efficacious than that by immerſion, in all caſes where that very capital remedy was indicated; notwithſtanding it has been ever the received opinion, that the ſucceſs of cold bathing, is as much, or rather more, owing to the weight and preſſure of the circumambient body of water, than *the ſhock*. The remarkable ſuperior efficacy of this Eaſtern method of cold bathing, can only be accounted for, from *the ſhock* being infinitely greater, and of longer continuance, than that received by immerſion; which is a fact indiſputable, as will be acknowledged by every one who goes through a courſe of both methods; the ſeverity of the one being nothing comparable to the other: this I aſſert from my own perſonal feelings; and I never had a patient that did

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not aver the ſame, who had undergone both trials: indeed, the ſhock of this Eaſtern method is ſo great, that, in many caſes, when the ſubject was deeply exhauſted and relaxed, I have found it abſolutely neceſſary to begin the courſe only with *a quart* of water.

If the known effects of cold bathing are attended to, and its ſovereign virtues duly conſidered, in the very different circumſtances of Palſies, Rheumatiſms, general relaxation of the ſolids, and particular relaxation of the ſtomach and inteſtines, we ſhall not be long at a loſs to account for this part of the Eaſtern practice in the courſe of Inoculation: They allege in defence of it, that by the ſudden ſhock of the cold water, and conſequent increaſed motion of the blood, all offenſive principles are forcibly driven from the heart, brain, and other interior parts of the body, towards the extremities and ſurface, and at the ſame time the intended fermentation is thereby more ſpeedily and certainly promoted; (hence it probably is, that the fever generally commences ſo early as about the cloſe of the ſixth day.) When the fever

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appears, they desist from the use of the cold water, because when the fermentation is once begun, the blood should not, they say, receive any additional commotion until the eruption appears, when they again resume the cold water, and continue it to the end of the disease; asserting, that the use of it alone, by the daily fresh *impetus* it gives to the blood, enables it utterly to expel and drive out the remainder of the *immediate* cause of the disease into the pustules. I have been myself an eye-witness to many instances of its marvelous effect, where the pustules have sunk, and the patient appeared in imminent danger, but almost instantly restored by the application of three or four collans of cold water, which never fails of filling the Pock, as it were by enchantment; and so great is the stress laid by the Eastern Practitioners on this preparative, (for as the three interdicted articles in food is preparative to the Inoculation, so this may be deemed preparative to the eruption,) that when they are called in, and find, upon enquiry, that circumstance (and opening the pustules) has

has not been attended to, they refuſe any further attendance.

The next and laſt article of the Eaſtern practice, which falls under our conſideration, is that juſt abovementioned, viz. the opening of the Puſtules, whilſt the matter continues in a fluid ſtate. That a circumſtance ſo important, ſo ſelf-evidently rational and eſſential, ſhould have been ſo long unthought of, appears moſt wonderful! and if my memory fails me not, HELVETIUS is the only writer upon the ſubject of the Small Pox, that hinted it in practice before Doctor TISSOT; this accurate and benevolent Phyſician has enforced it with ſuch ſtrength of judgment and argument, that he leaves little room (except facts) to add to his pathetic perſuaſive; in this he is ſupported by his learned and elegant Commentator and Tranſlator Doctor KIRKPATRICK, (page 226 and 227,) and I am not without hopes it will, contrary to Doctor TISSOT's expectation, "become a general practice;" the more eſpecially, when it is found to have invariable ſucceſs, and venerable antiquity, for its ſanction.

So great is the dependence which the Eaſtern Practitioners have on opening the Puſtules, in every malignant kind of the diſeaſe, that where the fluid ſtate of the matter has been ſuffered to elapſe without being evacuated, they pronounce the iſſue fatal, and it generally proves ſo; they order it in every kind, even the moſt diſtinct; for although in theſe it ſhould ſeem ſcarcely neceſſary, yet they conceive it effectually prevents inflammation and weakneſs of the eyes, biles, and other eruptions and diſorders, which ſo commonly ſucceed the diſeaſe, however benign; in very critical caſes, they will not truſt the operation of opening the Puſtules to the nurſes or relations, but engage in it themſelves, with amazing patience and ſollicitude; and I have frequently known them thus employed for many hours together; and when it has been zealouſly perſevered in, I hardly ever knew it fail, of either intirely preventing the *ſecond fever*, or mitigating it in ſuch ſort, as to render it of no conſequence; in various inſtances, which I have been a witneſs to, in my own, and others practice, I have ſeen the

Puſtules

Puſtules in the *contiguous* kind, upon being ſucceſſively opened, fill again to the fourth and fifth, and in the *confluent*, to the ſixth, ſeventh, and eighth time; in the very diſtinct ſort they will not fill again more than once or twice, and ſometimes not at all, which was a plain indication, that the whole virus of the diſeaſe was expelled in the firſt eruption.

The Eaſtern Practitioners, with great modeſty, arraign the European practice of Phlebotomy and Cathartics in any ſtage of the diſeaſe, but more particularly when deſigned to prevent, or mitigate the ſecond fever; alledging, that the *firſt* weakens the natural powers, and that the *latter* counteracts the regular courſe of *nature*, which in this diſeaſe invariably tends to throw out the offending cauſe *upon the ſkin*; that ſhe often proves unequal to the intire expulſion of the enemy, in which caſe, her wiſe purpoſes are to be aſſiſted by art, in that track, which ſhe herſelf points out, and not by a diverſion of the uſual criſis into another chanel; that this aſſiſtance can only be attempted with propriety, by emptying the Puſtules, as thereby freſh room is given

given in them for the reception of the circulating matter ſtill remaining in the blood, and which could not be contained in the firſt eruption; by which means every end and purpoſe of averting, or ſubduing the *ſecond fever* is obtained, with a moral certainty; whilſt Phlebotomy and Cathartics, adminiſtred with this view, are both irrational and precarious; as being oppoſite to the conſtant operation of Nature in her management of this dreadful diſeaſe.

It remains only that I add a word or two upon the Eaſtern manner of opening the Puſtules, which (as before mentioned) is directed to be done with a very fine ſharp pointed thorn: Experience has eſtabliſhed the uſe of this natural inſtrument in preference to either the ſciſſars, launcet, or needle; the Practitioners perforate the moſt prominent part of the Puſtule, and with the ſides of the thorn preſs out the pus; and having opened about a dozen, they abſorb the matter with a callico rag, dipt in warm water and milk; and proceed thus until the whole are diſcharged: the orifice made by the thorn is ſo extremely

ſmall,

ſmall, that it cloſes immediately after the matter is preſſed out, ſo that there is no admiſſion of the external air into the Puſtule, which would ſuddenly contract the mouths of the excretory veſſels, and conſequently the further ſecretion of the variolous matter from the blood would be thereby obſtructed; for this conſideration, the method recommended by Doctor TISSOT, of clipping the Puſtules with ſharp pointed ſciſſars, is certainly liable to objection, as the aperture would be too large; when in the true confluent kind, no diſtinct Puſtules preſent, they perforate the moſt prominent and promiſing parts, in many places, at the diſtance of a tenth of an inch, uſually beginning at the extremities; and I have often ſeen the Puſtules in the *contiguous*, and the perforated parts in the *confluent* kind, fill again before the operation has been half over; yet they do not repeat the opening until a few hours elapſe, conceiving it proper that the matter ſhould receive ſome degree of concoction in the Puſtules before it is again diſcharged.

If the foregoing Eſſay on the Eaſtern mode of treating the Small Pox, throws

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any new and beneficial lights upon this cruel and deſtructive diſeaſe, or leads to ſupport and confirm the preſent ſucceſsful and happy method of Inoculation, in ſuch wiſe as to introduce, into *regular and univerſal practice, the cool regimen and free admiſſion of Air*, (the contrary having proved the bane of millions,) I ſhall, in either caſe, think the ſmall time and trouble beſtowed in putting theſe facts together moſt amply recompenced.

*Chilton Lodge, Wilts,*
*September* 1, 1767.

FINIS.